

ABSTRACT OF THE DISCLOSURE

A unique method has been developed which can show the  
5 presence of fractures in an Earth formation as a mappable  
attribute. This method uses the frequency spectra derived  
from P-wave seismic data over a pair of specific time  
windows above and below a seismic horizon or reflector of  
interest to infer the presence or absence of these geologic  
10 fractures based on an attenuation of high frequencies. The  
method produces a parameter value ( $t^*$ ) which is proportional  
to the shift in frequency spectra amplitudes (i.e., energy)  
from higher frequencies to lower frequencies, that is, from  
a time-window above a horizon or reflector of interest to a  
15 time-window below the horizon or reflector of interest.